ECONOMIC REFORM IN EGYPT

Selected Topics

Edited by
Hebatallah Ghoneim

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Economic Reform in Egypt: Selected Topics

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Preface

Wave of revolution had proliferated Arab World since December 2010 creating a cutting edge in history. Revolution activities had started in Tunisia and spread from west Arab community in Mauritania to east in Bahrain. Revolution had taken the shape of civil resistance through protests, marches and media awareness campaign. Citizens are eager to experience an improvement in their wellbeing and daily activities, this book highlights selected economic reform issues that affect the daily activities of each Egyptian citizen.

Chapter 1: Subsidy has been one of the common features of Egyptian economy. Subsidy had beenpart of government tools to achieve income redistribution, social welfare and gain politicalsupport. This chapter highlights the changes occurred in the Egyptian subsidy program in an attempt to enhance efficient allocation of resource, create a competitive market, eliminate price distortion and provide a better targeting program. Main changes included subsidy expenditure , revising ration cards possession , adding smart card usage to the system, restricting size and sales of

baladi bread, increasing prices of petrol products, eliminating number of subsidized medicine and setting electricity progressive price policy according to usage category.

Chapter 2: This chapter gives an overview on *Takaful* and *Karama* program, which represents the first CCT program to be applied in Egypt. The chapter highlights the program targeting analysis, impact evaluation and operational arrangements. Additionally, this chapter discusses the way forward of this cash transfer program in light of international experiences.

Chapter 3: CCT is considered a revolution under the umbrella of social assistance. It attained its importance from its double edge benefit, as it works on alleviating poverty in short run through monetary provision, at the same time foster social and economic sustainability through its effect on education and health in long run. Nevertheless, the benefits of CCT under current education system need to be examined. This chapter model the impact of CCT taking inconsideration one major problem of education system in Egypt which is private lessons.

Chapter 4: Trade is seen as one determinant of growth in most of the developing countries. This chapter highlights the trade ability of the Egyptian economy as well as exploring the Egyptian strategy and process in trade liberalization.

Chapter 5: COVID19 pandemic situation has set health as primary target not only for growth and development but even for survival on earth. This chapter provides a literature review for the impact of nutrition intervention on the health of children.

H. Ghoneim
May 10, 2020

Notes on Contributors

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Introduction

The Egyptian economy, over its modern history, had been reeling between a centrally planned economy and a free-market economy. In 1805, Muhammad Ali Pasha monopolized all agriculture and manufacturing activities setting the roots for a centrally planned economy. He succeeded in expanding production and developing a robust economy as well as minimizing foreign powers domestically. However, soon after his death, this economy deviated into a capitalist economy dominated by Muhammad Ali's family, senior state officials, and foreigners. The capitalist economy resulted in massively unfair income distribution and created an economy monopolized by the elite group. This resulted in the 23rd of July revolution that targeted social equality and political reform. The revolution government headed by President Nasser directed the economy toward a centrally planned economy. Ever since Egyptians' dependence on government has been one of the main features of the society, and any

attempts to decrease government aid to citizens were met by violence and society rejection, such as the 1977 riots when President Sadat increased the prices of subsidized food. Accordingly, food subsidy has been considered a dominant public tool for achieving political stability and social coherence. Even so, this policy has expanded fiscal burden with macro imbalances, such as large national debt and inflation; besides corruption and institution deficiencies.

Such macroeconomic imbalances called for the implementation of the 1990s Economic Reform and Structural Adjustment Program (ERSAP) according to an agreement with the International Monetary Fund (IMF) and World Bank. ERSAP encompassed the restructuring of the public sector, targeting tightening fiscal spending and decreasing government market power. ERSAP targeted moving the economy into a more free-market economy. Under fiscal contraction, the poor have been the most affected and the income gap has increased significantly, which has called for pro-poor policies that better target the poor.

"Bread, freedom, social equality" was a slogan raised by protesters confirming that they were not only protesting against a long-lasting dictatorial system, but also an economic system that failed to provide basic needs and fair income distribution. Nevertheless, after the revolution, the country faced a difficult economic situation due to a collapse in the tourism sector, fewer investment inflows and in general a continuous slowdown in production. The country faced low growth rates, higher unemployment, low foreign reserves, and higher inflation rates.

In 2014, the government announced a transformational Economic Reform Program, that nearly adopted the same vision of ERSAP pushing the economy into a more free-market but set more emphasis on pro-poor policies. The program, incorporated with vision 2020, addresses

macroeconomic stability as well as achieving sustainable economic growth and development. Key pillars for the economic reform program is changing the subsidy program in an attempt to achieve better targeting, introducing the first conditional cash transfer program (called Takaful and Karama) to mitigate the transformation effect on the poor households, work on more global integration and improving human capital. This book will try to shade the light on this selected reform issues through its five chapters: Chapter 1, Subsidy: the Unfinished Business, Chapter 2: *Takaful* and *Karama*: The Path for Solidarity and Dignity, Chapter 3: Is CCT the solution for Public Education in Egypt?, Chapter 4: Trade Policy: The way to Growth, Chapter 5: Health reform can starts from kindergarten.

1 Food subsidy- The unfinished business

Hebatallah **GHONEIM**

Introduction

Thinking of the poor for some individuals is part of moral belief or religious behavior, while for the government it is duty and obligation. The government had developed welfare programs within a frame of social safety nets were support is provided to those in need to ensure the provision of basic needs and wants. Such public aid programs have an important contribution to achieving social solidarity, harmony, and sovereignty. Moreover, it contributes to achieving economic goals such as human capital improvement, productivity enhancement, and welfare progress.

Egyptian social safety net has been dominated by subsidy provision since ancient history when Pharos used to subsidy wheat. While, social cash transfer programs were applied by law in 1950 (Korayem, 2002). Subsidy in Egypt is divided between; first subsidized products such as food, petroleum and medicine subsidy, second is service subsidy such as

education, health, housing, and transportation subsidy. Out of those all; food Subsidy dominates public support to the poor in particular. Food subsidy has been divided over history between ration card and bread subsidy. Ration card subsidy is a quota on goods provided at low price presented only to ration cardholder, while bread subsidy is universally provided to everyone till 2013. This chapter would highlight the changes in the food subsidy program from 1941 till 2020.

General overview of food subsidy

Since 1941, the government started to provide basic goods to low-income groups targeting control of price shocks and food shortage. The trend of increasing food subsidy was kept slow till 1973 as it only targeted commodity shortage (Ahmed *et al.*, 2001; Alderman *et al.*, 1982; Scobie, 1983). From 1967 to 1973, most of the government expenditure was directed towards military actions and this was the main reason for cutting down subsidy. According to Goldschmidt (2008. p.190), the Egyptian government had spent about $8-9 billion to reconstruct and reinforce army force between 1967 to 1973. Besides high defence expenses, tourism and Suez canal activities were on hold which decreases foreign currency that is needed to purchase wheat to cover the need for bread subsidy (GoldSchmidt, 2008; Sheffer,1978).

1973 was a turning point in Egyptian political as well as economic history. After winning the war, economic policies reform redirected its integration policies toward western block instead of the eastern block and the open door policy (*Infitah* in arabic) was applied. *Infitah* policy aimed at increasing private, foreign investment and trade. *Infitah* Policy together with the end of war generated inflow of foreign currency represented as aid, grants, debt, Suez Canal, tourism and petroleum revenue (Baker, 1990; Goldschmidt, 2008). The government used these revenues to compensate citizens of wartime and wanted citizens to feel

they were rewarded after years of economic contraction due to military expansion. Thus, the government expanded subsidizes expenditure to achieve this target besides decreasing the price shock effect that took place in 1973 that set most of the developing countries victims of tremendous food price increase (Scobie, 1983; Scobie, 1988). Scobie (1983, p.13) reported that real food subsidy as a share of government expenditure jumped from 3.4 in 1951 to 13.5 in 1977. While, Scobie (1988, p.199) stated that imports of food expanded from 20 kilograms per capita in 1960 to 150 kilograms per capita in 1980.

As Egypt's External Debt escalated and with stress from the International Monetary Fund (IMF), the Egyptian government announced an increase in several subsidized products price; *fino* Arabic name for French bread, regulated sugar, rationed rice, tea, and cigarettes. Even though not all subsidized goods were included in the price increase, such as *baladi* coarse brown bread, edible oil, beans, lentils, and rationed sugar, rioting had spread all over Egypt as a reaction to a price increase. Riots did not only push the government to back down the subsidy cuts but also created a threat for any future subsidy reduction (Adams, 2000; Ahmed *et al*., 2001; Cooper, 1982).

Since 1980, the government had started a caution gradual program of decreasing food subsidy. In 1980, food subsidy represented 14% of the budget expenditure (Ahmed *et al*., 2001, p.1) and 35 items were subsidized according to Food Supply Organization of the Ministry of Supply. Food Supply Organization of the Ministry of Supply was the institution responsible for food subsidy before merging it with the Ministry of Social Solidarity in 1983 (Harik, 1992, p.491). While the average in the 1990s was 4.2% with a peak 5% in1991/92 and the average in 2000s is 4.0% with a peak of 5.8% in 2007/08 (c.f: Figure1).

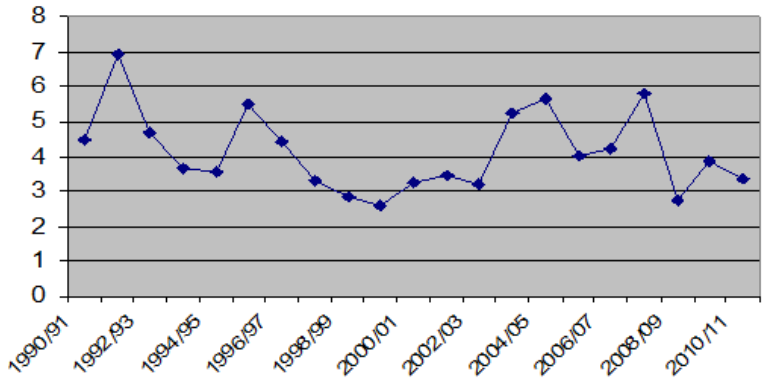

Figure 1. *Food Subsidy as percentage of budget expenditure (1990/91-2010/11)*
Source: Calculated by the author based on CAPMAS (2010).

According to figure 2 below, food subsidy in nominal prices has witnessed a slight growth from 1980 till 2003/2004. However, starting 2003/04 the government had to increase food subsidy expenditure due to an accelerating increase in international food prices besides the depreciation of Egyptian currency that had increased prices of imported wheat and flour, and respectively led to domestic prices increase. Egyptian pound had depreciated by 31% against the US dollar and was accompanied by an increase of 6.2% in CPI 2003 and 10.8% in CPI 2004 (Kraay, 2008. p.103). Price pressure for latter years had led to consistent food subsidy to fill shortage for low-income families. CPI food-beverage has reached 216.52, 251.99 and 291.76 in 2007/08, 2008/09 and 2009/2010 respectively in comparison for the base year 1995/96 (CAPMAS, 2010).

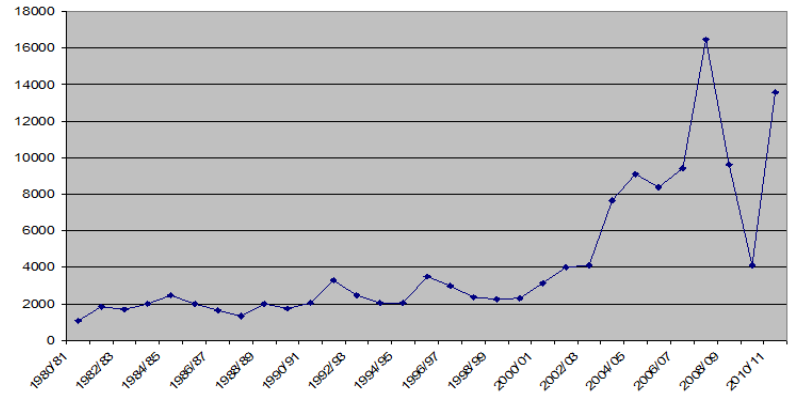

Figure 2. *Food Subsidy Nominal Values (1980/81-2010/2011)*
Source: Ahmed *et al.* (2001), CAPMAS (2010) and MOF (2020)

In short, it can be concluded that the food subsidy program in Egypt passed through three main stages. First a stable stage between 1941 till 1973, where food subsidy is used to cover quantity shortage. In the second stage from 1973 to 1980, the government used food subsidy to target public citizen welfare and gain political support thus massive expansion had taken place and slight contraction led to public violent actions. In the third stage after 1980, a gradual process of decreasing food subsidy had taken place to succeed to decrease food subsidy from 14% of total expenditure to nearly 3.5% in 2010.

After the January 2011 revolution and the election of the first democratic president, deteriorating economic conditions due to political instability put further pressure on cash government ability in a continuous increase in subsidy budget. In addition to slow economic growth, the government found its self-inheriting massive financial burden; an amount of 1310 billion pounds in 2013 (based on the budget balance sheet: MOF, 2020). The government followed a structured policy that targets providing subsidy to an only targeted group of poor families and middle-income families.

Overview of ration cards subsidy

Ration card was introduced in Egypt to support households during a crisis after the First World War. Then, it was expanded to be part of the social contract between the government and society. It represents the governments' main tool for social solidarity and equity.

After the 1952 revolution, the government had declared that its duty was to provide all citizens with basic goods. 1952 revolution was a turning point in Egypt's economic system, since then there had been massive government intervention in all economic conditions (Esmail, 1988). It had been a starting point for moving from a capitalist economic system dependent on the world economy to a centrally planned economy. There had been an expansion in ration cards holder, never less, ration card at that period served as a quantity card. It did not always provide lower price but it targeted mainly to fill the shortage in basic products that had appeared during wartime (Ahmed *et al.*, 2001; Alderman *et al.*, 1982).

Under food prices increase in 1965 and US aid cut, the government had to restructure ration cards. Four items, which are kerosene, sugar, edible oil and tea, were recorded for price subsidy in the ration cards (Alderman *et al.*, 1982). Between 1967 and 1973, the ration card subsidy was declined as part of government contraction policies due to military expenses. Major expansions in ration cards were applied to start from 1973 to isolate domestic consumers from international price shocks besides applying a post-war expansion policy and support to *Infitah* policy which are activated by law in 1974 (Scobie,1988). Esmail (1988, p.128) reported that food subsidy in 1973 and 1974 LE 108 million and LE419 million, which is nearly three times increase in only one year.

Ration cards expanded to include even non-food items such as cloth, cigarettes, and soap (Alderman *et al.*, 1982; Ahmed *et al.*, 2001). It was distributed through two main stories; private owned stores known as *tamween* shops and government stores and cooperatives known as *gamayya*. *Tamween* shops were privately owned shops that receive subsidized products and distribute them among ration card holders in return for a marginal profit. *Gamayya* were public outlet stores under Alexandria Company for consumer goods such as Al-Ahram and Al-Nil cooperative stores which receives a quota of commodities and distribute it among ration cardholders. It was the ration card holder's responsibility to register his card in the nearest store to be counted in-store quota. Both *tamween* shops and *Gamayya* used to sell nonsubsidized as well. *Gamayya* represented a cheap shop for public enterprise production and provided imported products such as canned meat. At that period, only meat and poultry were restricted by family size while other products were provided with no limit as long as it was available. Meat and poultry were limited to 1 kg per month for a family of one or two members, two kg for a family of three or four members and three kg for larger families (Alderman *et al.*, 1982).

In 1977, food subsidy became a burden on Egyptian government especially with currency depreciation that resulted into 56% deterioration between the year 1977- 1979 beside high population growth rate about 2.8% annual, and low economic growth rate nearly 4% and desire for investment expansion (Esmail, 1988, p.132). Alderman *et al.* (1982, p.16) estimated net losses of food subsidy as LE 250.2 million in 1976 and LE 330.6 million in 1977. The Egyptian government, according to the IMF proposal for economic reform, had decreased subsidy on several rationed goods such as sugar, cooking oil, tea, flour, rice, and cigarettes. This led to riots and violent activities specifically in Cairo and

Alexandria (Ahmed *et al.*, 2001; Cassing *et al.*, 2009; Gutner, 1999). President Sadat had no option but to step back in his decisions and expand food subsidy which had become the main stone for social safety and government legitimacy. Instead, the government had set a five-year plan (1978-1982) for a small adjustment in prices with a gradual increase in wages (Alderman *et al.*, 1982).

In 1981, ration records were adjusted and further adjustments were done in 1994 to remove death, emigrants, duplicate registration, those owning more than 10 feddans or LE3000 bank deposits and owners of stock joint venture companies. This decreased number of recorded families by 300 thousand (Abdelkhalek & Korayem, 2001; Alderman *et al.*,1982). A new ration card was introduced to segment families by income where less price subsidy is offered, also new births were not added (Selim, 2008). Respectively, the government succeeded in decreasing the ration card holder from 99% in 1970 to 70% in 1998 (Ahmed *et al.*, 2001. p: 9; Gutner, 1999. p.20). Also, specific quota and addition quota were set on rationed products which were mainly sugar, edible oil, rice, and tea. At some period, numbers of rationed products are eliminated to only two products sugar and edible oil in year 1996/1997 (Ahmed *et al.*, 2001; Alderman, 1988). Besides a gradual increase in prices were applied; for example, price of sugar was reported 35 piasters in 1977 (Alderman *et al.*, 1982, p.27) increased to 50 piasters in 1996/97 for fully subsidized cards and 75 piasters for partially subsidized (Ahmed *et al.*, 2001, p.27).

Despite the decrease in the ration card holder and creating limits on rationed subsidized products, nearly the whole society was benefiting from ration subsidized products. Anyone would buy subsidized products through *Gamayya* without even having a ration card especially before 1990. *Gamayya* did not only distribute ration card quota but also sold different goods with no quota limit produced by

public enterprises at lower prices without requiring membership. There was no limit on purchase from *Gamayya* cooperative, but each *Gamayya* cooperative had a monthly quota of supply which was usually less than the purchase of consumers. Thus long lines out of outlets were queued. This method of distributing goods by the willingness to wait was assumed to benefit the poor as a time opportunity cost for the rich is higher. However, this hypothesis is not supported and the rich benefited more as rich had the pleasure of sending their servants or paying tips to sellers in *Gamayya* to keep for them the quantity they want (Alderman, 1988). *Tamween* shops were different as they only had to distribute specific quota to ration cardholders. However, the low price of subsidized products and low-profit margin created an incentive to sell subsidized products at regular prices (Alderman *et al.*, 1982). Other problems appeared such as smuggling canned meat and soap to Sudan to benefit low prices (Esmail, 1988).

In the 1990s, Egyptian governments started selling public enterprises as part of ERSAP program, which eliminated the role of *Gamayya* as public production was eradicated. Ration cards started to be more efficient as membership for receiving subsidized products became obligatory. Besides, the government tried to achieve a self-targeted food subsidy system which means they offered products that are inferiorly packed or with lower quality to differentiate ration from other regularly sold products. Thus only those with low income would purchase this low-quality product seeking low prices while higher income would prefer to bear the higher cost for better quality. Moreover, subsidy for all high-income products such as meat, fish, and poultry are removed and offered products under ration cards were eliminated to basic goods (Ahmed *et al.*, 2001; Gutner, 1999; El-Mala & EL-Azzez, 2008).

In 2010, four main products (Sugar, cooking oil, rice, and tea) are provided at lower prices according to fixed monthly quota through a smart ration card (c.f: table 1). Till 2004 there were other products sold under ration cards such as beans, macaroni, butter and lentils (FAO, 2006). There are two types of cards, one with full subsidy and another with a partial subsidy to those working in the private sector. The government succeeded to decrease the expenditure of subsidized ration goods from 1.44 billion LE in 1990/91 to 1.2 billion LE in 2000/01. However, under international increases in prices, government expenditure increased in 2009/10 to 3.8 billion LE. (CAPMAS, 2010 and MOF, 2020).

According to the table 1, based on interviews with employees in governmental markets selling subsidized goods and number of the ration card holder in different districts in Cairo (Heliopolis, El-Zatoun, El-Matariya, Ain Shams, El-Marg and Helwan), shows that the average of subsidy government pay to each family is 75.6LE per family of four members or more (as the quota below is the maximum given) of smart ration card per month.

Table 1. *Subsidized Goods according the Smart Ration Card (December 2010)*

	Rice	Sugar	Edible Oil	Tea
Market Price [1]	3.33 LE	5.74 LE	8.00 LE	1.27 LE
Subsidized rice	1.50 LE	1.25 LE	3 LE	0.65 LE
Quantity per family of 4 (or more)	8 kilo	8 Kilo	4 Liter	8 Pack[2]
Total according to MRKT Price	26.64 LE	45.92 LE	32 LE	10.16
Total according to SUB Price	12 LE	10 LE	12 LE	5.20 LE
Total amount paid by the government	*14.64 LE*	*35.92 LE*	*20 LE*	*5.04 LE*

Source: Constructed by Author based on interviews with employees and cardholders.

[1] Market price represents the average of prices in December 2010 according to CAPMAS (2011).

[2] The Pack is 40 gram

The smart ration cards were first implemented in 2010, It covers specific governorates; Suez, Monofeya, Port Said, Souhag, Luxor, Zagazig and was first issued in Cairo in June 2010. According to Social Solidarity data, it covers 12million families in November 2010 which is nearly 65% of the whole population in comparison to ten million families in 2004. The main benefits of this card are that it is computerized so the opportunity of corruption and officials reselling subsidized products decreased to a minimum.

From cardholder perspective problems of ration card (a reference to ration card interviews done in 2010) can be summarized in low quality of some products especially tea, shortage in rice, the difficulty of issuing one and citizens' unawareness of their quota which opens the area of sellers corruption. However, they admit that they cannot complete the monthly requirement without it. From a Governmental perspective, it is a burden on government budget especially under high fluctuation of prices but on the other hand, it is part of political stability. Thus government depended on a gradual decrease of ration card cost through the difficulty of issuing new cards and working on providing low quality in comparison to the regular market.

After 2011, the government has set priorities to support marginalized families only. Based on Public financial budget statement, 66.6 million citizens was benefiting from ration card services with public expenditure equals LE11.4 million which is nearly 2.3% of public budget for the year 2013/2014 and 5.7% of the public deficit (MOF, 2020). Despite the government effort for fiscal reforms and decreasing the wage bill, the government did not decrease the directed funds to ration card subsidy, mainly due to the continuous increase in prices of food products. Based on public financial budget statement 2020, rational food subsidy expenditure increased by 8% in fiscal year 2018/19 compared to 2017/18. Nevertheless, in 2019 the government worked on decreasing

the number of registered families benefiting from ration cards. Ministry of social solidarity set several social justice determinants that are used to remove families that would be excluded from the ration card. Based on these determinants families with one of the following characteristics are excluded from ration card benefits: per month electricity consumption equals 1000 kW or more, owning 3 cars, owning a luxuries car model of 2013 or newer model, making value-added of LE200 thousand or more per year, paying tax bill LE100 thousand per year, Agricultural possession of more than 15 acres, owning custom imports or exports with a total amount LE100 thousands or more, mobile consumption per month with an amount LE800 or more, paying LE50 thousands or more as school fees and receiving a monthly public wage of total amount LE12 thousands or more.

This section has overviewed the situation of the ration card from its initiation to the latest updates. Ration card is one wing of food subsidy, the next section will highlight the other wing which is bread subsidy.

Bread subsidy overview

Baladi bread in specific is considered a strategic good for Egypt. According to IDSC (2007. p.3), Egyptians obtain 60.3% of energy from seeds and bread as Egyptian depend on *baladi* bread in their three daily meals besides its high calories. Importance of bread is not only due to high importance in Egyptian meals but also for the fact that Egypt is one of the largest importers of wheat worldwide (according to FAO statistics 2008, Egypt is ranked third in wheat imports after Algeria and Japan). According to CAPMAS 2010a, Egypt can cover only 57.8% of its consumption of wheat through domestic production within the period 2001-2008. This makes domestic prices dependent

on international prices and dependence on developed countries for providing basic needs.

Due to bread importance in Egyptian meals, government-subsidized wheat and used open market operation to lower wheat prices through Egyptian history. Such public intervention had expanded since 1952 when a general authority had been established to supervise mills, silos, and bakeries. Moreover, the government imposed a compulsory delivery policy as farmers had to deliver specific quota to public cooperatives at a fixed price (Alderman *et al.*, 1982; Kheirallah *et al.*, 2000). These activities were used by the government to isolate domestic markets from international shocks and respectively guarantee to sell bread at a low price. *Baladi* bread has always been sold to everyone at a subsidized rate which increases leakages to non-poor. According to IDSC (2007), 90% of the population benefit from subsidized *baladi* bread.

Starting 1980, *baladi* bread the same as the ration card started to witness a slow gradual decrease in subsidy cost. In 1984, *baladi* bread price was 1 piaster per loaf, the government had to introduce a better quality loaf at 2 piasters and then stop producing the 1 piaster loaf. The same action was repeated in 1998 to increase the price of bread to 5 piasters (Ahmed *et al.* 2001. p.9). Accordingly, the government stopped subsidizing *fino* and *shami* bread, which represents a better quality product that more purchased by higher income groups.

Since then, *baladi* bread loaf price is kept at 5 piasters, but instead, the government started decreasing the loaf size. In 1984, the size of *baladi* bread decreased from 168grams to 160 grams and then decreased to 130 grams in 1991 (Adams, 2000; Ahmed *et al.*, 2001). According to social solidarity ministry, which is the unit responsible for monitoring production and distribution of *baladi* bread, the loaf size should be 130 gram according to the ministry issued law no.

478 in 1998. However, according to the production data of *baladi* bread by CAPMAS (2009), the average size of *baladi* bread loaf in 2008 is 96.55 gram. This indicates that producers smuggle in the size of *baladi* bread to overcome its very low prices.

According to MOF (2020), *baladi* bread represented 73% of food subsidy in the period 2000/01-2010/11 in comparison to 43% in the period 1986/87-1995/96 (c.f. Figure 3). This returns mainly to the contraction of subsidizing ration goods, the non-targeting policy of subsidizing bread and incessant increase of the imported wheat cost.

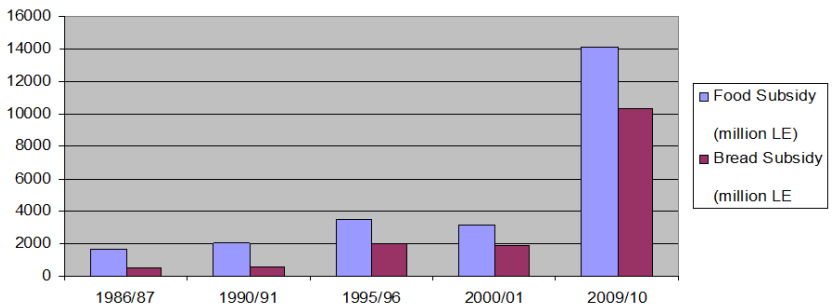

Figure 3. *Food Subsidy and Bread Subsidy (1986/87-2009/10)*
Source: CAPMAS (2010), MOF (2020) and Ahmed *et al.* (2001).

The main problem of subsidy bread is the inefficient targeting policy that direct subsidy to the non-poor. According to Ahmed *et al.* (2001), it is about 14% of the richest quintile benefit from *baladi* bread. As the government wanted to minimize administrative cost, a non-targeting policy is the best option and it started using several policies to make *baladi* bread inferior product and thus high-income individuals will divert to other products. First, the small size of bread and low quality in comparison to bread sold at private bakeries divert people from buying *baladi* bread. Second, the "willingness to wait policy", long queue made high-income individuals do not purchase high price bread as

they are not willing to wait (Alderman, 2002). According to IDSC (2007), 80% of those don't purchase subsidized *baladi* bread returned it to a low quality of loaf and to long queues. Third, better quality bread in low and middle-income areas are provided in comparison to high-income districts (reference households' interviews: appendix 2).

The second problem is that *baladi* bread faces are leakage of flour subsidy. The usual supply chain of subsidy is that the government provides subsidized bread outlets with subsidized flour to decrease production costs. The quota of flour is decided according to each outlet production level. With the low profit obtained (Ahmed *et al.* 2001), the expected profit of each 1000 loaf of bread is 1LE, the owner of the outlets would prefer to sell flour to bakers to benefit black market price and decrease the size of bread to keep flour quota his outlet receive the same. According to Kheirt (2008), 18650 ton of smuggling subsidized flour is arrested by supply police in a campaign made for consumer protection in 2005.

Third problem occurred is that several households use *baladi* bread to feed animals such as dogs they have for security and poultry raised at home (Esmail, 1998). Years ago, Egypt faced a shortage in supplying bread and queues where huge to the extent that people died due to crowdedness. Besides, many situations were reported where the outlets sell bread to poultry farm owners.

In 2013, the government has introduced a smart card for the distribution of subsidized bread. According to Kamal (2015), the ministry of supply and internal trade (MSIT) has given license to more than 19 000 bakeries for producing blade bread and sell each loaf at only 5 piasters. Based on Kamal (2015), "*baladi* bread flour cost the government $419/MT whereas it was made available to bakers for the equivalent of $26.5/MT". Bread smart card policy implementation has been a step to decrease the leakage of

subsidy to non-poor after the bread budget cot reached LE19.3 million in public budget statement 2012/2103 (MOF, 2020). Using the smart card, the government limits five loaves of bread per each member registered in the smart card (Ketchley & El-Rayyes, 2017) and a family can collect its quota for three days collectively. The program allows members to swipe the benefits from unused bread subsidy to ration card, this would decrease the exaggeration of using bread. Based on officials' announcements in national journals, the government cost per loaf is 60 piaster for the loaf sold at 5 piasters. There is also a proposal by the government to allow licensed bakeries to sell *baladi* bread at 75 piasters in an attempt to pay the increasing cost of bread the government is paying and as part of fiscal reforms. Smuggling and waste of subsidized flour are an issue that costs the government mentoring cost, as well as leakage to non-poor since still, 70 million individuals are benefiting from subsidized bread.

Summary and discussion

Food subsidy has always been a critical issue for achieving both social solidarity and political stability in Egypt. Major changes have been applied lately as part of the fiscal reform adopted. Food subsidy is a major support to both lower-income families as well as middle-income families. Nevertheless, it is the remaining unfinished business with high leakage, undefined waist, and poor regulations. The government has also introduced further tools to support marginalized families; such as the cash transfer programs that will be elaborated in the next chapter.

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2 Takaful and Karama: The path for solidarity and dignity

Imane **HELMY**

Introduction

Egypt is one of the countries in the in the Middle East and North Africa (MENA) region that had historically embedded universal subsidies in the social protection system. Egypt has undertaken recent gradual reforms to replace universal subsidies with targeted Social Safety Net (SSN) instruments, including conditional and unconditional cash transfers. These reforms are expected to achieve inclusive and equitable growth and sustainable budgetary savings. Nevertheless, they pose several challenges, including inflationary effects and potential negative impact on household welfare and production cost of sectors that rely on subsidized products (Sdralevich, Sab, Zouhar, & Albertin, 2014).

In 2014, the Government of Egypt (GoE) announced an Economic Reform Program to address macroeconomic imbalances, improve social inclusion and achieve sustainable growth. The main pillars of this medium-term reform

program are highlighted in Figure 1. Afterwards, GoE started to undertake various measures on each pillar to pave its path for sustainable growth and development (Figure 2) (International Monetary Fund, 2019; The Egyptian Center for Economic Studies, n.d.; World Bank, 2017).

On the monetary policy side, the Central Bank of Egypt (CBE) announced the devaluation of the Egyptian Pound in November 2016. This action was intended as a starting move towards adopting a flexible exchange rate regime to improve competitiveness, boost tourism and investment, and increase international reserves. Accordingly, the value of one US dollar was 18 Egyptian pounds after flotation compared to 8.8 Egyptian pounds before the float. Furthermore, GoE worked on strengthening the investment environment by passing laws to facilitate procedures of doing business in Egypt and create a competitive environment for investors (International Monetary Fund, 2019; World Bank, 2017).

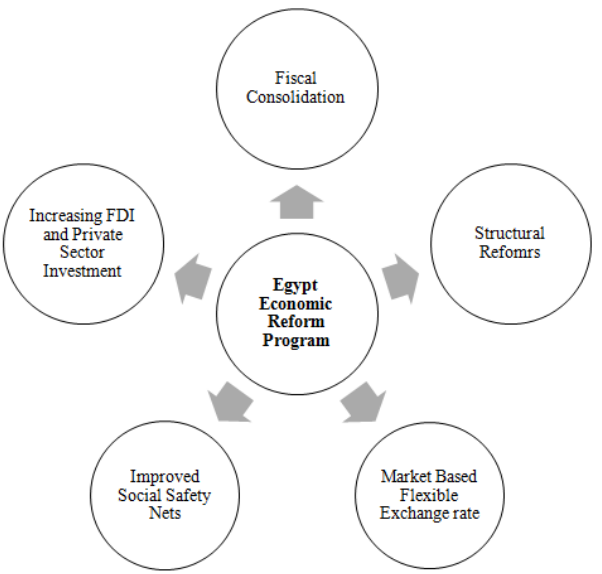


Figure 1. *Egypt Economic Reform Program (2014)*
Source: compiled by author based on IMF (2019), World Bank (2017).

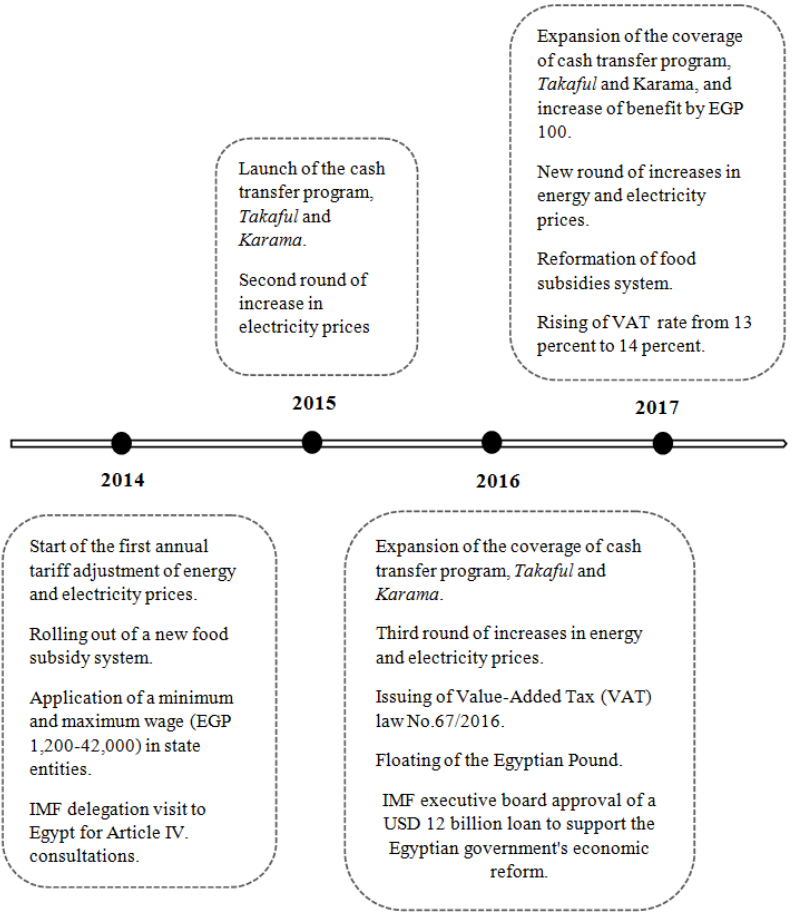


Figure 2. *Summary of key measures of economic reform program (2014-2017)*
Source: compiled by author based on IMF (2019), World Bank (2017).

The main measures undertaken by GoE on the side of fiscal policies and Social Safety Nets (SSN) tools included:

A. *Tax Policy and Revenues Reforms*: Expanding the tax base by implementing VAT law, put into effect the property tax law that was first passed in 2008 and increase excise taxes on cigarettes and alcohol.

B. *Public Spending Priorities and Subsidies Reform*: reprioritize spending to create fiscal space to invest in

human capital. This will be achieved through the gradual phasing out of inefficient subsidies, such as fuel, electricity and food, and shifting towards social spending on health, education and infrastructure.

C. *Social Safety Nets*: GoE took some measures to foster inclusive growth and social justice by expanding SSN, improve targeting mechanisms and reduce leakages. In an attempt to ease the implications of the reform program on the poor, GoE introduced Takaful and Karama Program.

Cash transfer programs in Egypt: A synopsis

Social cash transfers have been implemented in Egypt since 1950, yet their share of GDP does not exceed 1 percent of GDP compared to 9 percent and 5 percent for commodity subsidies in 2014/15 and 2016/17, respectively (Abdalla & Al-Shawarby, 2017). Furthermore, the benefit level is mostly insufficient and not indexed to inflation (Korayem, 2002; Loewe, 2004). Cash transfer programs are administrated by different institutions (World Bank, 2005). For instance, the Ministry of Social Solidarity (MoSS) is a key player which administers a contributory pension system that covers government employees, private and public sector workers, casual workers and Egyptians working abroad (Helmy, 2006). In addition to this contributory pension program, other non-contributory unconditional cash transfer programs are managed by MoSS including child grants, emergency assistance and the Social Solidarity Pension, *Daman* (Ministry of Social Solidarity, 2019).

The Social Solidarity Pension program targets the poor and vulnerable, such as orphans, widows, divorcees, elderly, people with disabilities and families of imprisoned persons. This program covers around 1.7 million households and provides a monthly amount between EGP 323 and EGP 450

depending on the size of the household (equivalent to USD 18 to USD 25 using an exchange rate of 1 USD=17.8 EGP) (International Monetary Fund, 2014).

A temporary assistance program targets pregnant women and emergency cases such as people suffering from medical expenses, school fees, natural disasters and accidents. Moreover microloans or interest-free loans are lent to poor families by some governmental institutions such as Nasser Social Bank (Loewe, 2004; World Bank, 2005). There is another system of social assistance managed by Ministry of Religious Affairs (*Al-Awqaf*) that mostly targets the employees of the ministry. Other programs are financed by charitable donations, or Zakat, and directed to female-headed households or poor families through Zakat committees (Loewe, 2004).

Takaful and Karama Program (TKP)

The first Conditional Cash Transfer (CCT) program in Egypt was piloted in 2009 by MoSS and the Social Research Center (SRC) at the American University in Cairo (AUC). The pilot was conducted in a slum urban area in Cairo, Ain El Sira, and enrolled 163 poor households. Thirteen months following a baseline survey, a follow-up survey showed a positive impact on female employment and decision-making with respect to children's schooling, clothing purchases and medical treatment. Furthermore, women's resistance to domestic violence increased compared to the baseline survey (Zaky, 2014).

In March 2015, this pilot was scaled up to a national program, called *Takaful* and *Karama* Program (TKP), launched by the GoE to protect the poor and mitigate the effects of the economic reform program. The program is implemented by MoSS and co-financed by the Egyptian Government and The World Bank. The objective of TKP is to establish a well-targeted SSN program in Egypt that

effectively covers the poor and invest in their human capital to eventually replace the fragmented programs currently in effect (World Bank, 2015a).

The design of program was informed by large-scale international programs including *Bolsa Familia* in Brazil and *Opportunidades (PROGRESA)* in Mexico (World Bank, 2018a; 2019). TKP is among fifteen CCT programs implemented in MENA region including *Tayssir* Program in Morocco and other programs in Algeria, Jordan, Kuwait, Oman, Qatar and Tunisia that are linked to educational conditionality (Machado *et al*., 2018).

Program Description and Targeting Analysis

Takaful (Solidarity) is the first CCT program in Egypt that provides monthly[1] income support to poor families with children aged 0-18 in order to improve human capital investment in health and education. Initially, households received 325 EGP as monthly basic transfer and the additional transfer per child depended on the level of education: primary student (60 EGP), preparatory stage students (80 EGP) and secondary stage students (100 EGP). Starting July 2017, the additional support included 0-6 years old children (60 EGP), primary student (80 EGP), preparatory stage students (100 EGP) and secondary stage students (140 EGP). The program covers a maximum of 2 children per household[2] and recertifies beneficiaries every 3 years (Breisinger *et al*., 2018; World Bank, 2018a; 2018b; 2019).

The Takaful program aims to introduce behavioral changes. Thus, it requires that families comply with certain

[1] At the beginning of the program, transfers were done on quarterly basis (World Bank, 2017).

[2] The program initially supported a maximum of 3 children per household till November 2018.

conditions related to increasing the uptake of health and education in an attempt to facilitate the breakdown of the intergenerational transfer of poverty (see Box 1 for a discussion on conditionality). For instance, families with children of school age, 6-18 years, must provide proof of attendance for at least 80% of school days, while mothers with children from 0 to 6 years must pay two visits per year to health units and keep their child's growth-monitoring records in addition to attending health awareness sessions (World Bank, 2018a; 2018b; 2019). However, enforcing conditionality requires an adequate supply of services to enable beneficiaries to comply with the conditions, which could be challenging, particularly in the poorest regions of Egypt. Likewise, conditionality could impose administrative challenges due to the need for education and health providers to report on service usage by beneficiaries and verify their compliance (World Bank, 2019).

Karama (Dignity) is a categorical cash transfer program to the elderly, orphans and people with disabilities that affect their ability to work. It offers an unconditional monthly transfer that increased from EGP 350 to EGP450 in July 2017 (Breisinger *et al.*, 2018). One of the key features of *Karama* program is moving away from medical assessment of beneficiaries to determine eligibility based on a functional assessment that reduce subjectivity and errors which is aligned with international best practices and the United Nations Convention on the Rights of Persons with Disabilities (World Bank, 2019).

Takaful and *Karama* Program is distinguished by recertifying its beneficiaries every three years to reassess their socio-economic position and evaluate their eligibility to the program. Moreover, TKP includes citizen engagement activities like establishing a sound grievance and redress mechanism and founding social accountability committees

to disseminate program information and assist with application requirements (World Bank, 2019).

Traditionally, MENA countries, including Egypt, used geographical or categorical targeting (Kurdi *et al.*, 2018). To overcome the inefficiency of these targeting methods, TKP applies a hybrid targeting approach. In addition to categorical selection criteria (e.g. having children under 18 or being elderly/disabled), the program applies geographical targeting techniques, Proxy Means Testing (PMT) and external exclusion criteria. It uses geographical targeting guided by poverty maps to identify poor governorates. In these poor areas, households register in social units and the applications are evaluated using Proxy Means Testing (PMT) methods. This method uses poverty predictors including household head and members characteristics (gender, age, marital status education and employment…etc.) as well as housing characteristics and ownership of assets. Additionally, some exclusion criteria are used to determine eligibility based on administrative data like land or car ownership, being a government employee, enrolled in social insurance/pension or receiving remittances from abroad (Breisinger *et a*l., 2018; Kurdi *et a*l., 2018).

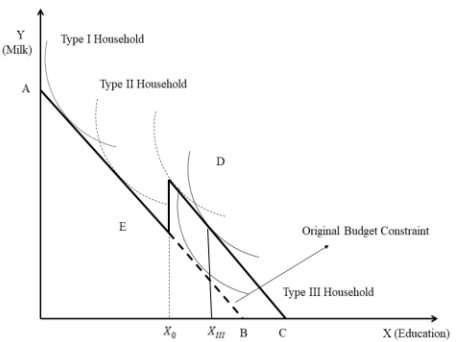
The PMT method was found to be slightly superior to other targeting methods by a number of cross-country comparative studies due to its minimization of inclusion error, especially when the country is well-equipped with a good implementation capacity. On the other hand, PMTs are prone to multiple errors depending on the proxies, as well as being expensive and requiring high administrative costs (Coady *et al.*, 2004; Grosh & Baker, 1995; Kidd & Wylde, 2011; Kurdi *et a*l., 2018).

Box 1: *The Economic Rationale of Conditional Cash Transfer*

Proponents of Conditional Cash Transfer (CCT) argue that tying cash transfer to conditionalities of health and education is expected to have a positive effect on school enrollment and attendance, consumption, child nutrition and poverty levels. Furthermore, CCT encourages human capital investment, which provides long-term benefits (Besley *et al.*, 2003; Fiszbein *et al.*, 2009; Rawlings & Rubio, 2005). CCT changes the accountability relationship between government, service providers and households by encouraging the later to use available education and health services (Rawlings & Rubio, 2005). On the other hand, conditionality might be hindered by the low quality of health and education services as well as weak monitoring and administrative capacity (Besley *et al.*, 2003).

To highlight the economic rationale of conditionality, Das *et al.* (2005) assumed that three households (Household I, Household II and Household III) consume two goods X (education) and Y (milk). Prior to the cash transfer scheme, maximum consumption is constrained by the budget line AB. After being enrolled in the cash transfer program, the budget constraint is given by AEDC. If a household consumes X_0, there will be an extra amount of income showed by ED; if less than X_0 is consumed, the household will remain on the pre-transfer budget constraint. In this way, consuming at least X_0 is required obtain extra income.

The different behaviors of three households and their corresponding Indifference Curves (IC) are indicated in the below figure. A Type I household (dotted IC) is not enrolled in the cash transfer program, so the household remains on the budget constraint AB, consuming less than X_0. A Type II household (dashed IC) previously consumed less than X_0 (AE budget line), but started to consume X_0 after joining the cash transfer program to receive additional income (ED), which increased the utility level (higher indifference curve). Type III households consume an amount greater than X_0 both before and after the intervention, so they prefer to use the extra cash to consume more milk (Y) and move to higher indifference curve. In the case of market failure, a Type II household is assumed to underinvest in education. Therefore, by imposing the condition of consumption at X_0, policy makers are providing incentives to households to take an action that they otherwise would not take deliberately. In this case, cash transfer constrained by the conditionality of education is better than UCT, as it will improve social welfare and increase efficiency when the economy faces market failures (Das *et al.*, 2005).



Source: (Das *et al.*, 2005)

Following this targeting approach, TKP was originally rolled out in the poorest areas of 6 governorates in Upper Egypt: Suhag, Assiut, Luxor, Qena, Aswan, and Giza, where the poverty rate exceeds 50 percent; the enrollment was later increased in phases. Afterwards, the program expanded to districts where poverty is 30 percent and above. By 2017, TKP had a national coverage of around 2 million households, out of 4.7 million registered households, including around 9 million individuals in the 27 governorates of Egypt (Breisinger*et al.*, 2018; Kurdi *et al.*, 2018; Ministry of Social Solidarity, 2017; World Bank, 2019). The program has a strong gender empowerment and financial inclusion pillars given that women are the main beneficiaries of *Takaful* who receive the transfer through smart cards to be used at post offices (Jawad *et al.*, 2018; World Bank, 2019). Accordingly, around 88 percent of TKP beneficiaries are women. (World Bank, 2019).

It is estimated that poor rural households represent around 80 percent of cash recipients. Around 45 percent of that amount covers the poorest quintile, while another 22 percent covers the second quintile leading to a targeting accuracy of 67 percent. On the other hand, exclusion error is high given that the program covers around 20 percent of households in the poorest quintile (Breisinger*et al.*, 2018; Kurdi *et al.*, 2018). These findings were supported by Selwaness & Ehab (2019) who analyzed Egypt Labor Market Panel Survey (ELMPS) 2018 and found that around 78 percent of TKP beneficiaries belong to the poorest 40 percent of population. Furthermore, the analysis of Household Income, Expenditure and Consumption Survey (HIECS) 2017/18 confirmed these numbers by indicating that 20 percent of poor living in households with children are receiving Takaful while around 79 percent of the transfer is covering poor living in households with children.

A recent study assessing the targeting efficiency of TKP found that the program has a better targeting performance compared to regressive subsides. However, TKP has a large exclusion error that is expected to decrease if the budget allocated to the program and its coverage increase. By the same token, the cash benefit represented around 17 percent of household expenditures, and this percentage reached 25 percent for the poorest quintile. These findings highlight the need to expand the coverage of the program, particularly in urban areas, which had been limited due to budget consideration (Kurdi *et al*., 2018).

The budget allocated to the program increased over the years from EGP 1.7 billion in FY2015/16 to EGP 4.1 billion in FY2016/17, EGP 7.7 billion in FY2017/2018, EGP 17.5 billion The budget of TKP was reflected for the first time as a separate account in the general budget of the government in FY2017/18 reflecting a solid commitment of the GoE to integrate TKP in the SSN system. The budget allocated to the program increased over the years from EGP 1.7 billion in FY2015/16 to EGP 4.1 billion in FY2016/17, EGP 7.7 billion in FY2017/2018. In FY2018/19, around EGP 17.5 billion were allocated to cash transfer programs (Daman and TKP) while in FY2019/20 the amount increased to EGP 18.5 billion (Ministry of Finance, n.d.).

Assessing Takaful and Karama Program

An impact evaluation study was conducted in 2018 by International Food Policy Research Institute (IFPRI) on a random sample of TKP beneficiaries using quantitative and qualitative methods. The main findings of the study show that Takaful beneficiaries witnessed a significant increase in their consumption by around 7.3 to 8.4 percent compared to households who did not receive the program which is comparable to findings from international programs in Brazil and Mexico. The program had supported the

beneficiaries in sustaining their consumption when faced with increasing prices. Moreover, beneficiaries witnessed an improvement in the quality of diets, nutrition and education spending. While the quantitative analysis showed mixed findings on women empowerment, the qualitative study points out to the positive effect of cash transfer on women's ability to make spending decisions, aspiration and sense of empowerment (Breisinger*et al*., 2018).

The studies of Helmy *et al*. (2019) attempted to assess the economy-wide impact phasing out subsidies and introducing new tools of indirect taxes, namely Value-Added Taxes using a Computable General Equilibrium model calibrated to Egypt disaggregated Social Accounting Matrix (2012-2013). Additionally, they studied the impact of using fiscal savings to implement different cash transfer modalities in Egypt, including conditional and unconditional targeted cash transfer and a universal basic income scheme. The main findings of the studies indicate that CCT outperforms other cash transfer modalities in terms of household welfare and demand for labor although it was not enough to simulate private consumption and boost economic growth. Nevertheless, the current non-contributory cash transfer distribution tends to overcompensate rural poor households at the expense of the urban poor. Consequently, there is a need for SSN measures that target urban poor households and cover the middle-income households are the most harmfully affected group by the expected full removal of subsidies.

Furthermore, the results of Helmy *et al*. (2019) points out to the importance of backed up subsides reforms and cash transfer programs by substantial complementary reforms such as pro-poor spending on infrastructure, human capital, and Research & Development. These complementary reforms will allow the country to maintain reform momentum, make progress toward structural

transformation, and avoid being locked in a low productivity trap. Accordingly, fiscal policies could create the necessary fiscal space to make strategic public investment choices that stimulate demand for skilled labor.

Another study by Helmy & Roushdy (2019) provided evidence that TKP transfers have been well-targeted towards more vulnerable households, yet their likelihood of exposure to shocks was still relatively higher than non-beneficiaries (31 percent for beneficiaries compared to 15 percent for non-beneficiaries). These findings signal the need for wider coverage of the program with adequate benefit level that mitigate risks and reduce the adverse effects of shocks.

The way forward

The Government of Egypt is currently considering issuing a new Social Solidarity law that unifies social solidarity pension, *Daman*, under the umbrella of *Takaful* and *Karama* program after applying PMT to assess their eligibility. This law attempts to increase efficiency of programs and reduce fragmentation (World Bank, 2018).

Building on the database of registered poor, MoSS launched additional integrated social protection initiatives and programs including *Sakan Kareem* "Decent Housing" which aims at restoring floors and improving housing conditions of poor and vulnerable households, *2 Kefaya* "Two is enough" which is a family planning initiative for TKP beneficiaries and *"No illiteracy with Takaful"* for illiteracy eradication, among others.

Last but not least, MoSS launched a new program *FORSA* that aims to connect poor and vulnerable households to different economic inclusion and employment opportunities including self-employment and wage employment to graduate them out of poverty and reduce their dependency on cash transfer. The design of this program was inspired by BRAC graduation model among others.

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3 Is CCT the solution for public education in Egypt?

Hebatallah **GHONEIM**

Introduction

Public education is free of charge, respectively poor can join education programs. However, there are other expenses such as transportation, daily meals, cloth, donation, and private lessons. Private lessons are a situation where teachers give lessons to students out of school. It is a profitable job for any teacher and represents additional income that each teacher would need. Parents usually prefer to give private lessons as they are not sure of their children performance. They believe that would decrease academic moral hazard, since there is a risk that the results of students are not satisfying. So parents are willing to pay extra expenses in an attempt to decrease this risk. Moral hazard rises in academic performances because parents cannot measure their children performance and in most cases cannot direct their studying habits or capabilities (Bodvarsson & Walker, 2004).

According to IDSC (2011, p:5), 75% of students are taking either private lessons or extra paid classes at school or both together. While according to IDSC (2006), more than 39% of the poor (in the conducted survey) depend on private lessons for their children.

The problem of private lessons is first it turns students to dependent characters that take information just from the mouth of the tutor, do not try to find information from books, and always need support. The ultimate results are students lack creativity and research skills. Second, teachers themselves always have the incentive to teach less efficiently in schools to save their effort for private lessons and to encourage students to depend more on private lessons. Although the government tries to eliminate private lessons it has been expanding rapidly and the fear is that when the government gives cash to poor on condition they send their children to school they depend more on private lessons. Respectively the government faces a moral hazard situation that it wants to give poor money on the condition they send their children to school but they are not sure of recipients' behaviour after aid whether this will be an incentive for them to go to school or not.

A game is built exploring the expected effect of CCT on private lessons problem and its settings will be elaborated in the next section.

CCT game settings

This game will only be theoretically elaborated and payoffs will be hypothetically set. The main target is to show the moral hazard that would occur under such condition. The idea of the game that the government would like to give CCT to poor as an aiding system in order to promote their economic and educational status. But the government lacks information about recipient intention concerning using this aid and

unfortunately such aid would create incentive to poor to depend more on private lessons. Since parents would be eager to make their students pass schools either to receive aid or because they want their children to improve. Thus it is a game between government and recipient and more information will discuss about these two players next section.

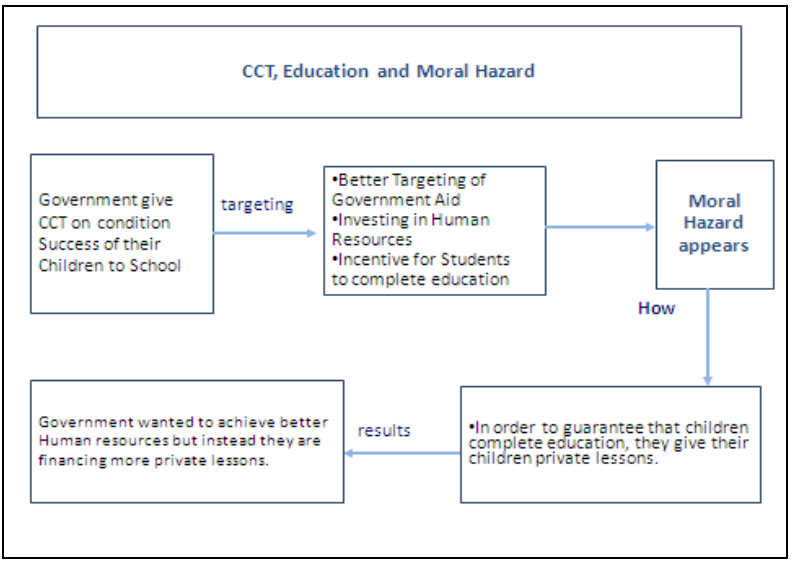

Figure 1. *CCT creates Moral Hazard in Education Sector*

The game includes two players

1st Player: Government: In this game, the government wants to decrease its costs but at the same time guarantee that the poor receive better education which will be an asset for a better future.

2nd Player: Recipient: The same as the previous game those families spending less than 8760LE yearly on food and beverage.

Government strategies are as following

The Government is trying to choose which is better:

1- Give food Subsidy: This is the status quo

2- Give Conditional Cash Transfer: replace food subsidy with cash transfer on the condition that the poor send their children to schools and children succeed yearly.

Recipient strategies

Such a condition would create an incentive to send their children to school to guarantee that their success:

1- Give Children Private Lesson.

2- Do Not Give Children Private Lesson.

Features of the game

Before playing the game the following features of the game showed be clear:

- Game Type: It is a 2-player sequential game. The Government plays first then the recipient has to decide.
- Level of Information: It is a game with asymmetric information. The Government would give CCT to those have ration cards and respectively do not enlist adverse selection problem. Selection is based on being poor and nothing else. However, the government is not sure how the recipient will use cash.
- Nature Effect: two nature effect can be examined here:
- 1st: Nature of recipient himself whether he values education or not and whether he believes that education is essential for children's future or not.
- 2nd: Inflation effect is a key issue in this game as well as its structure of how the recipient uses the aid he receives.

More explanation for the game is explicated through the decision game tree.

Decision game tree

The Game can be explained through four stages (figure 2):

- Stage I: Government has to choose between current status which is aiding people through food subsidy or substituting it with CCT.
- Stage II: Recipient is chosen according to poverty criteria and he might come out to be a parent who values education or a parent who does not value education.
- Stage III: Recipient has to decide whether his children need private lessons to pass exams or not.
- Stage IV: Recipient should consider giving private lessons or not under inflation considerations.

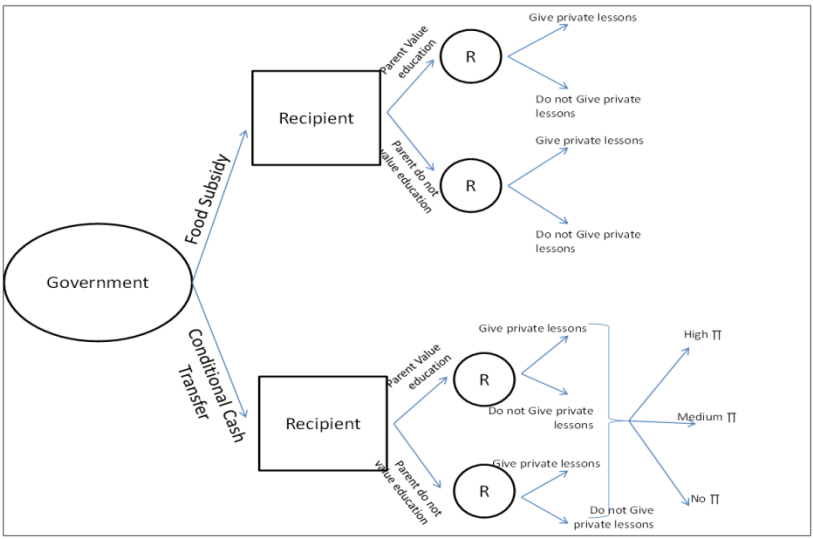

Figure 2. *Education Decision game Tree*

Different Scenarios and possible outcome

Below three possible scenarios illustrated in figure 3 will be discussed to show the possible outcome and its implication.

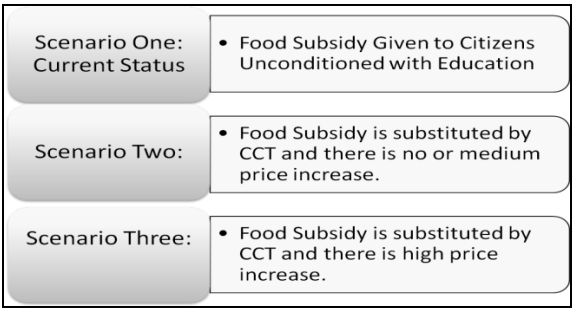

Figure 3. *Game Different Scenarios*

The current situation is a situation where food subsidy is given to citizens unconditioned to education. However, it has an indirect effect as the recipient received food at a lower cost thus they have a budget for education. The recipient is either a person who values education or a person who does not value education. If recipient value education then he would urge his children to obtain a certificate by all means and to guarantee his success he would bear extra charges of private lessons. The result is that lazy students would complete education although they receive no benefits and even good students get a wrong educational tool that kills their creativity. Parents do not value education will not pay the extra charge for private lessons and the situation would end up with drop out of schools. Respectively, it seems that it is either drop out of school or take private lessons (illustrated in figure 4).

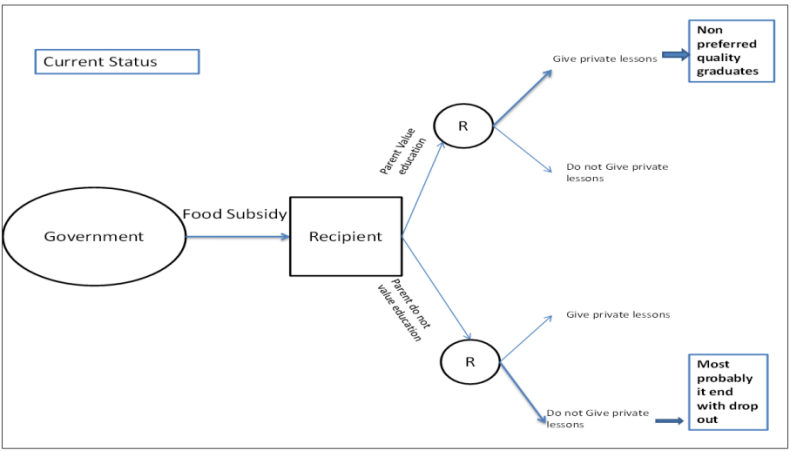

Figure 3. *First Scenario: Current Status*

The second situation is that the government converts its cornerstone aiding system from food subsidy to conditional cash transfer. Respectively aid will be linked to education performance and even those who are not keen to send their student to schools will start sending them to guarantee government aid. Thus now not only those who value schooling will send their children to schools; they have the incentive to pay the extra charge to send their children to schools, but those who do not value education as well. However, this would appear only if there are some controls on prices but if inflation went so high a third situation would occur. If prices went so high, poor parents will not be able to endure the cost of life as well as education cost whether in terms of private lessons or other indirect costs. Those who will not value education would get their children out of schools so that they would work and support in earning income. Even a part of those who value education would depend on their children for earning income which would cost less effort in learning and studying (illustrated in figure 4).

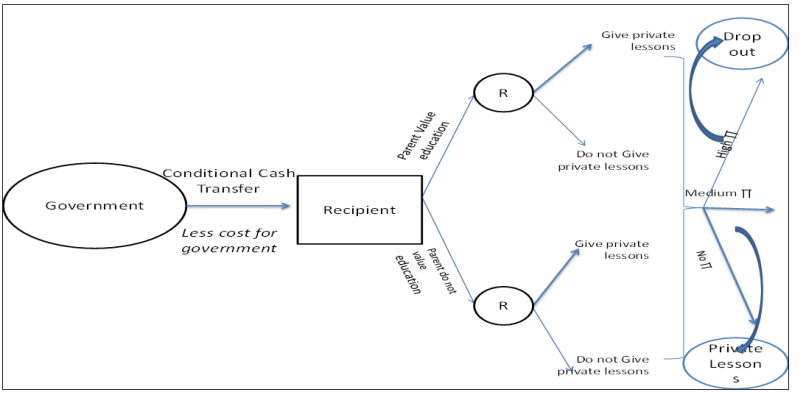

Figure 4. *Second and Third Scenario: CCT according to Price Changes*

It can be concluded that setting conditions on government aid to education increased the moral hazard situation. It led to a situation where lazy students complete education and government financing private lessons although it do great efforts to stop it. However, this would return to the fact that what is needed is not to decrease drop out or increase gross enrolment ratio but what needed is to improve the education system to develop better human resources. Inflation again is an element key in deciding to complete education or not, especially that cost of education which is child labour is high. According to CAPMAS (2011), 23% of children who are less than 12 years have to work and about 80% of them are from a rural area where children have to support their parents in farming. According to CAPMAS (2011), the main reason behind working is to support family projects and earn higher family income.

In summary, CCT could be a rational decision to government as it decreases public but it creates an incentive for parents to pay extra charges to private lessons to guarantee the success of children and respectively guarantee the flow of aid. However, it could be argued that poor families who deserve government aid will not afford private lessons and thus there is no fear of additional private

lessons. But if families do not afford private lessons then the probability of the success of their children under the umbrella of an education system that promotes private lessons is very low. Respectively they will urge their children to work to increase family income and cover the shortage of government aid due to their failure.

Summary and conclusion

This chapter highlighted how would CCT be a reason for increasing moral hazards problem under the current education stream. It would lead either to more private lessons for best price scenarios and drop out if inflation went so high. Quality of education would be the reason behind a decrease in gross enrolment ration in Egypt lately; correspondingly improvement in the quality of the system should be improved before relating cash to education. If we want education to act as a long development tool, better quality should be the incentive for a person to complete education and not extra pounds.

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4 Trade policy: The way to growth

Yara **EL SEHAIMY**

Introduction

According to the World Bank, Egypt's GDP is $250.895 billion in 2018, which starts to improve after the sharp decrease in 2016; due to the flotation of the Egyptian pound. As well, GDP per capita starts to improve after the floatation of the Egyptian pound that reaches $2,549.139. GDP growth rate in 2018 reaches its maximum in nine years with 5.314% of economic growth. Moreover, the current account balance in 2017 scores the lowest value in three years with a value of -3.373% of GDP. Current account balance reflects net export value, and its negative value shows that Egypt suffers from a trade account deficit, which means exports of Egypt are lower than the values of imports. In 2018, trade % of GDP scores 48.278%, which is the highest in nine years.

In 2018, Egypt ranked 67th among countries in exporting merchandise and 45th among countries in importing. When

excluding intra-trade with European Union, Egypt ranked 46th among countries in exporting merchandise and 28th among countries in importing. Egypt ranks improved in trade by 21 points in exports and 17th points in imports when intra-trade with European Union is eliminated. The reason behind this improvement is that the rest of the countries in trade rank are trading much more with the European Union; thus, when removing intra-trade with European, Egyptian rank in trade improved. The main products Egypt exports are Agricultural products, manufactures, fuels, and others with 19.8%, 49.7%, 23.7%, and 6.9% respectively. The summation of Egyptian exports is $27,624 million. European Union is the main importer from Egypt with a 30.9% share of exports, followed by Turkey 6.9% and United Arab Emirates with 6.8%

The main products Egypt imports are Agricultural products, manufactures and fuels with 24.9%, 51.8%, and 23.3% respectively. The total of Egyptian imports is $ 72,000 million. European Union is the main exporter to Egypt with 27.1% share of imports, followed by China 14.2% and Saudi Arabia 7%. Egypt contributes to the world exports with 0.14% and 0.36% in the world imports.

As for trade in the commercial service, Egypt ranked 43rd in exports and 48th in imports. The main commercial services Egypt exports are transport, travel, and others with 38.6%, 50.7% and 10.7% share of exports respectively. Commercial services sum of exports in 2018 is 22,906. While, the main imported services are transport, travel, and others with 45.8%, 15% and 39.3% share of imports respectively. Egypt contributes in the world exports with 0.40% and 0.33% in the world imports (WTO, 2019).

Trade policies and reforms

Imports

Egyptian trade is oriented toward trade liberalization (Mettwally, 2013; Said, 2012; Smith, & Kulkarni, 2010). Trade reform, job quality and wages of the working poor in Egypt: Evidence from manufacturing panel data. In which, the Egyptian economy moves toward free markets and lower trading barriers. Trade liberalization is reflected in increasing exports and imports of Egypt across time (Figure 1). Besides exports and imports, tariffs rate is decreasing over time, which also support that Egypt is a liberalized economy (figure 2). Although, the current account balance is improving through years; however, due to increasing imports relative to exports, current account shows a negative value. Despite of its negative values, current account balance is improving; due to the decrease in imports values relative to exports (figure 3). Liberalizing trade allows the Egyptian economy to enhance economic activity and its efficacy, which is proven empirically by testing the effect of trade of economic activities as GDP using absolute and comparative advantages. Moreover, Egypt becomes a part of trade agreements as COMESA, EU – Egypt and MERCOSUR that helps in eliminating barriers and enhancing trade in Egypt (Based on Gafi, 2019).

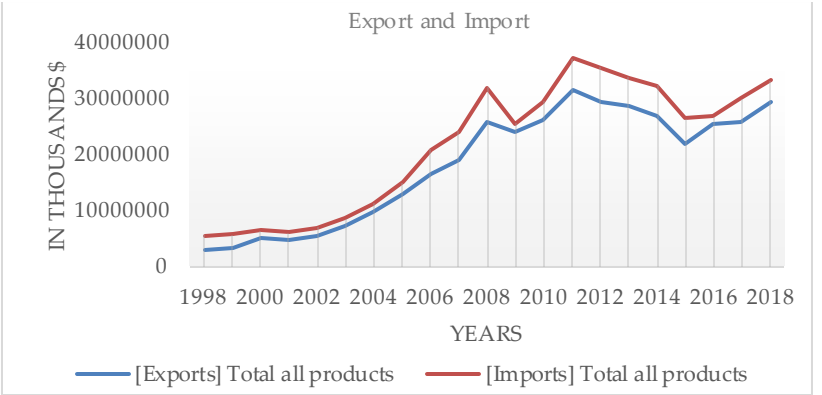

Figure 1. *Overview of Exports and Imports (1998-2018)*
Source: Constructed by Author, UNCTAD (2019)

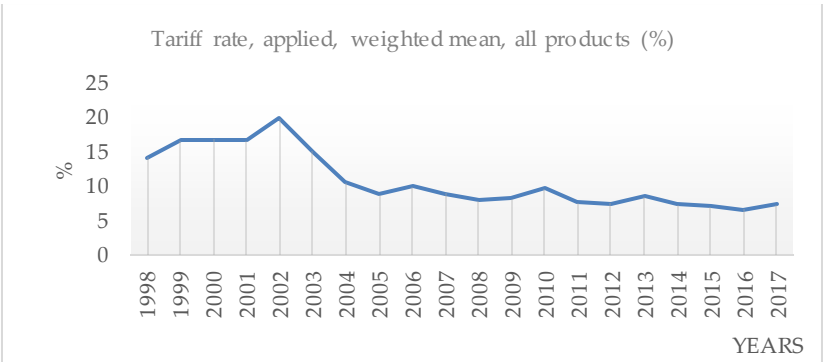

Figure 2. *Egypt' Tariff (1998-2017)*
Source: Constructed by Author, based on WTO (2019)

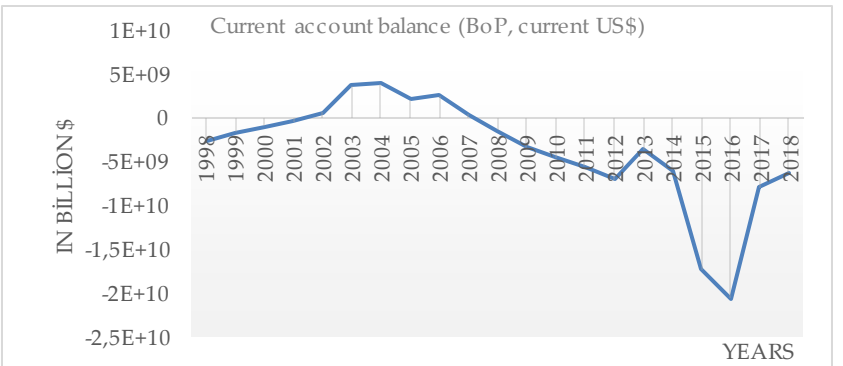

Figure 3. *Egypt Current Account Balance (1998-2018)*
Source: Constructed by Author, based on World Bank (2019)

Egyptian Customs Authority (ECA) is the governmental authority, which is responsible for implementing, monitoring and collecting customs. The main target of ECA is to monitor exports and imports of Egypt and apply the corresponding custom rates. Egyptian customs system follows The International Convention on the simplification and harmonization of Customs procedures (SHCP), known as the Revised Kyoto Convention. SHCP main objectives are transparency of customs actions, standardization of goods declaration, simplified procedures, use of technology and partnership with trade. All the imported goods are subjected to customs declarations corresponding to its value (WTO, 2019), except for free zones. In FY 2016, customs tax and duty account for one quarter of the total collected tax revenues; table 1 provides revenues received from customs duty from 2013 until 2016.

Table 2. *Revenues from customs duty*

	2013/14	2014/2015	2015/16	2016/17
Revenues from Customs duty (LE million)	17,673	21,867	28,091	29,548

Source: WTO (2018) Trade Policy Review report

According to WTO report, Egypt applies preferential tariff rates to trade partners referred to the signed trade agreements. Figure 4 provides all trade agreements of Egypt along with the % of the duty exemption. For example, in EU trade agreement, Egypt implements preferential tariffs ranged between duty free and reduced rate, as well as part of MFN (lowest tariff rates) and normal rates. Application of preferential tariff rates proves the movement of the Egyptian economy towards free markets with much lower restrictions for the trade agreements partners of Egypt.

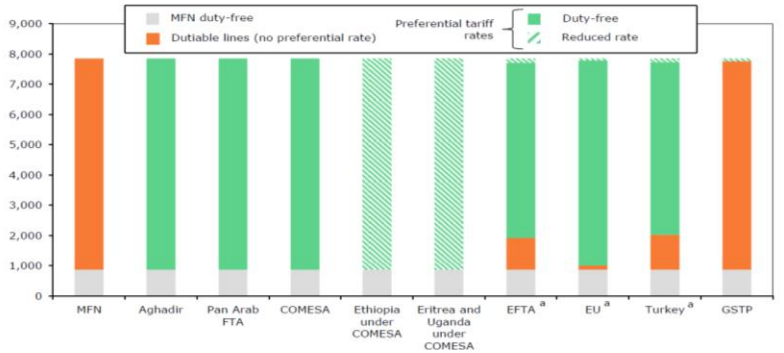

Figure 4. *Preferential Tariff Rates*
Source: WTO (2018) Trade Policy Review report

According to the WTO report, Egypt applies preferential tariff rates to trade partners referred to as the signed trade agreements. Figure 4 provides all trade agreements of Egypt along with the % of the duty exemption. For example, in the EU trade agreement, Egypt implements preferential tariffs ranged between duty-free and reduced rate, as well as part of MFN (lowest tariff rates) and normal rates. The application of preferential tariff rates proves the movement of the Egyptian economy towards free markets with much lower restrictions for the trade agreements partners of Egypt.

In 2010, ECA introduced excise taxes, which applied to specific product categories as Tobacco 50%, Consultancy and Professional services 10%, Construction 5%, etc. furthermore, on 30th of November 2016, Presidential Decree No. 538/2016, introduces customs changes. Tariffs rate increased from 40% in 2016 to 60% in 2017 gross values. The total increase account for 7%, 6.15 of which applied to non-agriculture products as Electrical machinery and equipment and furniture.

Although, value-added tax (VAT) is introduced with a 13% rate on specified categories and replace general sales tax (GST) on the 30th of June 2017. VAT rate increases to 14% in the first of July 2017. Product categories as machinery and

equipment used in production subjected to 5% as well as essential commodities. After introducing VAT, there are product categories are subjected to both excise as well as VAT, for example, beer (alcohol) 200%, passenger cars above 200 cc 30%, golf cars 10% and air condition 8%. Moreover, in October 2017, the ministry of finance introduced Single Admin Document (SAD) to facilitate importing procedures. Besides, Egypt imposed 11 anti-dumping duties in 2017 on China (5), India (2), Turkey (2), the Republic of Korea, and Pakistan. Table 2 specifies goods and penalties, which anti-dumping applied on.

Table 3. *Anti-Dumping Duties*

Country/ customs territory	Product	Date of original imposition	Date of extension	Definitive duty
China	Porcelain or ceramic tableware	25.02.03	23.01.14	208% (c.i.f. value), US$967 per ton
	Ball point pens	22.01.07	16.10.12	US$0.0185 per pen
	Tyres for buses and lorries	06.03.08	20.02.14	3.8%-60% (c.i.f. value)
	Blankets (other than electric blankets) and travelling rugs of synthetic fibres	25.08.15		54%-77% (c.i.f. value), US$1.53-1.89 per kg
	Coated electrodes of base metal, for electric arc welding	05.10.16		30%-41% (c.i.f. value), US$0.21-0.28 per kg
India	Tyres for buses and lorries	06.03.08	20.02.14	46%-59% (c.i.f. value)
	Ball point pens	21.02.13		82%, US$0.02 per pen
Korea, Rep. of	Dioctylorthophthalates	29.11.16		6.2%-13.9% (c.i.f. value), US$72-145 per tonne
Pakistan	Match boxes	10.04.17		0% to 35% of CIF value
Turkey	Wet wipes	24.01.16		72% (c.i.f. value), US$0.04-0.31 per pack
	Coated electrodes of base metal for electric arc welding	05.10.16		23%-58% (c.i.f. value), US$0.36-0.95 per kg

Source: WTO (2018) Trade Policy Review report

Exports

Export Development Authority (EDA) under the ministry of trade and industry is responsible for export developments and promotions come to force in May 2017. The main targets of EDA are to develop strategies, increase the competitiveness of Egyptian exports to be able to compete internationally, provide flexible laws and regulations, and offer technical assistant and business development services for exporters. Besides, Export Development Fund (EDF),

which come to force under the Export Promotion Law No. 155/2002 targets improving the marketing of Egyptian products internationally, provides market research, offer inspection laboratories, training centers, develop communication networks with the importing markets, finance export market studies, and minimize the financial costs on exporters. The main difference between EDA and EDF is that EDA is concerned with exports strategies and planning for improving exports, on the other hand, EDF is concerned with increasing diversification and quantity of exported goods.

As for export support, until 2009, Egypt was providing export subsidies for the textile and clothing sector by 8-10% paid by EDF. After the rejection of such a subsidy from many sectors of the Egyptian economy (exporters in other sectors, investors and businessmen) the EDF decided to eliminate this subsidy. It is proven now that Egypt did not provide export subsidies for exported goods and services; instead, the Export Development Bank of Egypt (EBE) provides financial support on short and medium ranges for exporters. In 2016, granted loans for exports accounted for LE 13.5 billion and LE 16 million granted by the Agriculture Development Programme (ADP) for exporters from agricultural companies.

Furthermore, custom duties on imported inputs used in the production of exported goods are 100% refunded within 2 years of payment. As well, the excise duties are refunded on the imported imports used in domestic production. In addition to, export exceptions, free zones according to the customs law are exempted from all export duties as ell as zero VAT rate is applied to them. Furthermore, export restrictions in Egypt declared by a Ministerial decree and always come to force to meet domestic demand or shortage in supply of a specific good. According to Ministerial decree number 722/2016, rice exporting is banned starting from

2016; due to the lack of water resources. Moreover, Egypt applies export duties on 25 product categories (WTO, 2018), for example, 12,000/ton export duty applied on fresh and refrigerated fresh fish until 24th of August 2018, and 3.000/ton unlimited export duty on sugar.

In addition, the Egyptian ministry of trade and finance through its subsidiaries introduce regulations reforms to enhance exports. First of all, in 2017, law number 15, accepted by the parliament and enter into force May 2017, which calls for simplifying licensing procedures for industries. The law reduced the duration of issuing licenses for low-risk industries to 7 days and 30 for high ones. As well, it will help Central Bank in providing LE 200 billion to finance small and medium enterprises projects.

Alternatively, the government subsidiary General Authority for Investment and Free Zones (GAFI) is concerning with enhancements of investments and its regulations in Egypt. Besides, establishing free zones to promote and accelerate the diversity of product categories in Egypt. In 2017, GAFI introduces a new investment law of Egypt under the Prime Minister Decree No. 2310/2017. The new law of investment provides a wide range of reforms that benefits the domestic as well as the international trade situation of Egypt. Firstly, the law targets enhancing investments in a specific sector, which include, agriculture, certain oil field services, financial services, hotels, infrastructure, manufacturing, medical services, mining, software development, tourism, and transport.The benefits obtained by these sectors are (GAFI, 2019):

1. Imports of equipment are subjected to fixed 5% customs duty.
2. 3 years exemption from stamp duties and registration fees from the date of registration.
3. Tax holidays on company profits, personal income tax on dividends, and annual stamp duty on capital.

a. 5 years tax holiday for all investments

b. 10 years tax holiday for investments established in industrial zones

c. 20 years tax holiday for investments outside Nile valley

4. 5 years exemption from stamp duty and registration fees for lands used in set up companies.

5. 30% or 50% exemption on net profits depends on the zone of company operation, with a maximum of 7 years.

6. Allow the government till April 2020 to offer government land for investors with low or free prices.

7. Investment Zones (which are currently 13 among 44 Egyptian governorates.):

a. Deal with investments zones as industrial ones

b. Facilitating license issuance

c. Operation is done by the private sector, however, regulated by the government

d. Pay the same tax rates paid in Egypt

In conclusion, the direction hosted by the Egyptian government is liberalizing trade and protect the domestic producers at the same time. The regulations and laws applied in import tariffs/customs are on average decreasing overtime in Egypt; however, the current rates still trying to protect domestic producers through customs/tariffs duty on imported product categories. Besides, the government promotes exports and diversification of product categories produced in Egypt as well as investments. The government promotion to these sections of the economy done through the government subsidiaries as GAFI. Many reforms have been applied in the previous three years to help prompt improvements and significant positive changes in trade and investment enhancement in Egypt.

Egypt 2020 trade strategy

This section is based on industry and trade development strategy launched by Minister of trade and industry launched the Egyptian 2020 trade industry (MTI, 2016). Aiming at achieving an annual 8% industrial growth, the rising share of industrial products to GDP by 3%, increasing share of Small and medium enterprises (SMEs) to GDP, intensifying annual export growth rates to 10%, providing 3 million job opportunities and attaining institutional development. The success of the strategy attributed to identifying the capabilities and the obstacles the Egyptian economy has. As for the capabilities, according to the ministry of trade, the Egyptian economy is a competitive, knowledge-based, diversified and market economy. Besides, domestic characteristics, internationally, Egypt is considered an active player in the trade as well as capable of maximizing value-added in the production. Both national and international characteristics of the Egyptian economy will help to achieve the targets of trade strategy. Nevertheless, the economy suffers from some drawback that faces domestic and foreign investors, when investing in Egypt. First of all, production licensing and land ownerships complexities as well as production incentives obstacles. These three factors affect the business climate and consequently will affect the industrial and GDP growth rates.

First, Egypt, represented in the ministry of trade and industry, hosted industrial development as a strategy for achieving sustainable economic development. Second, improving industries will help Egypt fulfill domestic demand as well as increase export growth rates. These are the two main cornerstones that the vision of the strategy relies on. As for the mission, it is providing the ultimate environment for economic development through enhancing

competitiveness, diversification, innovation and job opportunities. Moreover, the ministry of trade and industry targeted the largest four industries that Egypt has the maximum comparative and competitive advantage in to deepen. Deepen the four industries by decreasing the imports and increasing the exports of the industry.

The targeted industries with this strategy are subdivided into three main categories. First, industries targeted with increasing its exports are engineering, chemicals, textiles and clothing, information technology and software, and craft activities. Second, industries targeted with increasing its value-added are agriculture, textiles and clothing, iron and steel, leather, furniture, and natural product-based industries. Third, industries targeted with decreasing imports and increasing exports are engineering, textiles and clothing, building materials and chemicals.

The five main pillars of the strategy along with the main projects to be applied are presented in figure 5. It can be easily concluded that, Egyptian policy makers are concerned with having a legislation reform, innovative production processes, sufficient lands and competitive products. These are the main four means for achieving 2020 strategy. For years, the legislation is a barrier for investment in many ways (Rodriguez, & Rodrik, 2000), such as, ownership of the land, patent rights and even labor laws. Improving the legislation will definitely allow for better quality of investments. Besides legislation reforms, innovation is the key for trade nowadays. Production processes are no longer concerned about mass production only; it is about having innovative ideas for products that solve a community problem. Nevertheless, to have competitive productsare a challenge, it requires producing products with competitive quality, quantity and pricing. Of course, technologyalong with skilled labors are required for such competitive products, which is considered a challenge for the Egyptian

community that government along with its subsidiaries try hard to solve and excel in it (Aydin *et al.*, 2012).

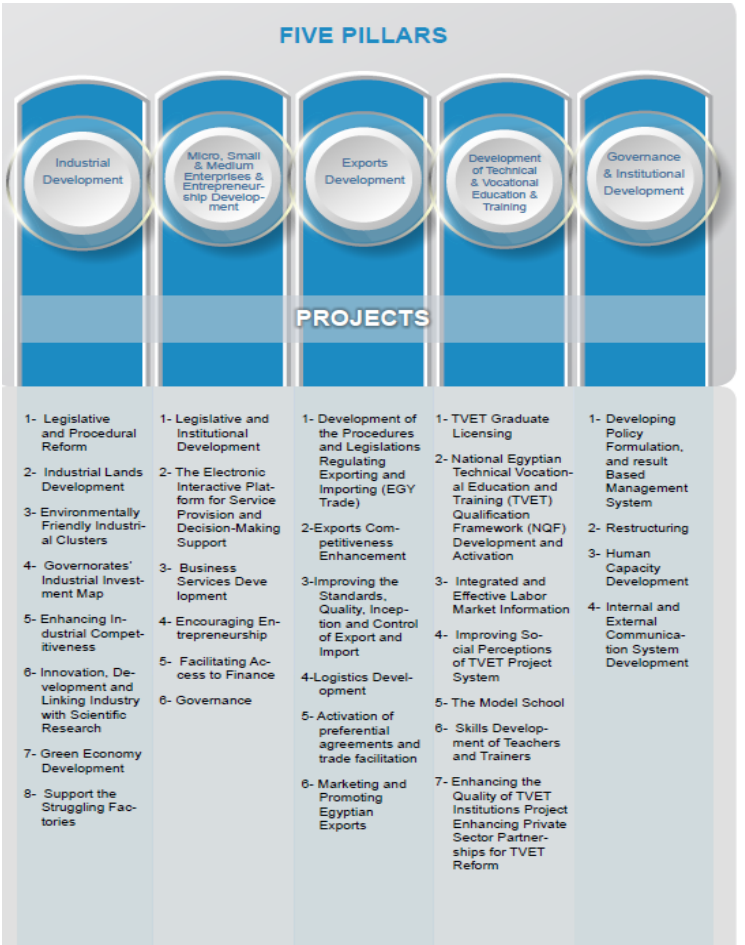

Figure 5. *Five main pillars and projects of 2020 Egyptian trade industry*
Source: MTI (2016).

Conclusion and further policy recommendations

Trade openness is always the main pillar of growth for developing countries. By removing tariffs and non-tariffs barriers, the economy starts to significantly grow and develop. With real GDP reaching high middle-income countries, Egypt strives to trade liberalization in order to develop. Egypt hosts export-oriented strategy as a mean for liberalization (Ghoneim, 2000). Thus, exports incentives are increasing over time. The Egyptian government represented by the ministry of trade and industries provide a portfolio of reforms to encourage investors and production. They started over with legislation reforms to facilitate ownership of land, patent rights as well as procedurals of firm formation. Furthermore, tremendous tax incentives, reach elimination in the case of production in free zones, for exports. Along with the reforms in investment law, that helps more in attracting foreign investors.

On the other hand, the customs of imports are increasing over time. The reason behind this increase is trying to host import substitution strategy to improve domestic production as well as protect the domestic producers. Besides, customs duty revenues accounted for one quarter of the total collected tax revenues in FY 2016, with an amount of LE 29,548 million. Furthermore, introducing excise tax in 2010 and VAT tax in 2016 greatly affect imports of Egypt by rising its prices on the domestic consumer. Which is a trial from the government to discourage foreign consumption. Nevertheless, Egyptian Customs Authority (ECA) exempts imports, which is considered an input for exports; as a kind of incentive for domestic production, even if the raw materials are not available in Egypt.

In conclusion, Egypt tries to improve exports as a mean towards economic growth, create job opportunities as well as

gain competitiveness. Egypt has done so far tremendous efforts in fixing investment climate as well as provide producers will all the factors of production needed. However, there are still more reforms to be done starting from the legislation. First of all, responsible subsidiaries from the government should eliminate laws complexities and multiple legislation from the law, and try to reach out to a simple, smaller number of laws and regulations to facilitate the process. Second, infrastructure should be of great concern for investors and domestic producers to facilitate production. Third, greater efforts should be excreted to develop domestic workers; to fulfill the needs of the firms effectively. Nevertheless, the trade will always be the light for the developing nations in the harsh path of growth and development.

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5 Health reform can starts from kindergarten

Rania **MEGALLY**
& Hebatallah **GHONEIM**

Introduction

COVID 19 has paused the whole world regardless of how strong it's economy. The privilege is given to countries that established a strong health sector capable of facing such pandemic. Questions are raised about the student's loss under such pandemic. Children are not the highly affected group, however, a risk-free certificate is not guaranteed. Respectively, it is important to ensure that children are enjoying good immunity. A Key for good immunity is a well-planned nutrition system.

In 2017, UNICEF and Egypt's Ministry of Health and Population cooperated to set a Nutrition Agenda for Action in order to increase nutrition interventions in Egypt. Given the 2011 nutrition targets of the World Health Assembly, which are supposed to be achieved by 2025, such as a 40% reduction in chronic undernutrition for children five years of age and a reduction of wasting in childhood to less than 5%.

Egypt has not been on track for these targets. The reason for this is because stunting has remained at 20% since 1990, obesity in children has increased from 5.6% in 2000 to around 15% in 2014, and anemia in children under five years of age was approximately 27% in 2014. Accordingly, the paper of the Agenda for Action Policy aimed to define a practical plan that assembles multi-sector support, in addition to multi-stakeholder support, in order to increase nutrition actions. This was in alignment with the aim to update the National Nutrition Policy so that it matches global and national commitments such as Egypt Vision 2030, the 2025 nutrition targets of the World Health Assembly, and Sustainable Development Goals (UNICEF, 2018).

Consequently, the National Food and Nutrition Policy and Strategy (2007-2017) targeted many policy areas that focus on improving the nutrition situation, food security, as well as the control and prevention of micronutrient deficiency; however, the absence of clearly allocated funding and proper budgeting for nutrition interventions increased the challenge toward the actions of the Nutrition Policy, despite the fact that there is available funding for smaller programs across the country (IFPRI, 2014). In addition, the health sector proved to be underfunded with only 6% of the national budget being allocated to healthcare during the 2014/2015 fiscal year.

Hence, this research aligns with recent efforts of the Egyptian government which are mainly represented by Egypt's national 100 Million Healthy Lives campaign and NCD screening campaign. Both campaigns aim to reduce epidemic diseases such as hepatitis C, as well as raising awareness in order to control the prevalence of NCDs like diabetes, obesity, and high blood pressure. The efforts have been directed to screening school children for stunting, obesity, and anemia. Also, the National Nutrition Institute is training hospital personnel in the universal health care

system in Egypt in order to facilitate the screening of school children. This piece of research is considered a response to the call from Egypt's scientific community to generate rigorous evidence on effective interventions that target the improvement of nutrition in Egypt (Mahmoud & Kurdi, 2019).

This chapter is a suggestion to the Health Sector in Egypt to strengthen the immunity of children through an intervention policy to be implemented in school. The policy could be providing children of kindergarten with fortified supplements on a daily basis. This will not only guarantee better health but also will assist children to gain cognitive skills. The next Section will highlight literature that showed how intervention in the health sector impacts the cognitive and educational skills of children.

Impact of fortified supplements on cognitive skills and health outcomes

Iron-deficient children have been observed to have alteration in the span of attention, perceptual disturbances, as well as, low scores of intelligence (Beard *et al.*, 1993; Lozoff & Brittenham, 1986; Pollitt, 1993; Pollitt & Metallinos-Katsaras, 1990; Sheard, 1994). Generally, the status of iron affects a state variable such as arousal or attention which consequently changes performance (Pollitt, 1993; Pollitt & Metallinos-Katsaras, 1990).

A standard approach for the prevention and treatment of iron deficiency can be represented in the provision of iron supplementation on a daily basis (Goddard *et al.*, 2000). The intermittent iron supplementation proved to be effective in decreasing anemia level when provided to preschoolers and school-aged children in spite of its lower effect relative to the daily supplementation (De-Regil *et al.* 2011). This section will

spot the light and overview of some impact evaluations that have been covered in different developing countries.

Many researchers studied the impact of fortified supplements on health outcomes of the children in preschool age that covers the hematological outcomes as well as the anthropometric measures. Eichler *et al*. (2012), has done a meta-analysis on the studies that measured the impact of the micronutrient fortified food on children's health outcomes. The results showed that 13 studies proved an increase in the mean hemoglobin level of the treated children relative to the hemoglobin level of the children in the control groups by 0.62 g/dl. The children were receiving iron-fortified food. Also, Eichler *et al.* observed that the iron multi-micronutrient fortification approach showed higher improvement in the hemoglobin level relative to the iron single fortification approach. The hemoglobin increases by 0.20 g/dl in the latter approach, but much higher in the iron multi micronutrient fortified food to reach an increase of 0.87 g/dl.

There is another study was implemented on anemic Indonesian children where the children in the treatment group were provided iron supplements of 30 mg iron and 20 mg of Vitamin C. The results showed a significant improvement not only on hematological values but also a significant increase in the height-for-age z-score that reflects a decrease in the rate of stunting as an impact of the iron supplements (Angeles *etal*., 1993).

While Hassanzadeh-Rostam *etal*. (2014) focused on the impact of the iron-fortified supplements have been focused on height-for-age and weight-for-age z-scores in Iran. The treatment was a multivitamin-mineral syrup that is fortified with iron, zinc, and magnesium where the weight of the iron was 10.5 mg. The administration of the treatment supposed to be for two months. The results showed a significant improvement in the children's weight but not weight-for-age

z-score of the treated children (Hassanzadeh-Rostam *et al.* 2014).

Focusing on measuring the impact of fortifying the daily meal of preschoolers with iron-on their anemia level, a study on Brazilian children measured both the hemoglobin level, as well as, the hematocrit levels to test the treatment effect. There were two treatment arms, one of the treatment groups was provided with 5 mg of iron to fortify their meals at school, and the other arm was provided with 10 mg of iron. Both groups were provided the treatment on a daily basis for 12 weeks on anemic children aged from two to five years. The results showed an improvement in both hemoglobin and hematocrit levels in both treatment groups as the ones who were provided with 5 mg had an increase in the hemoglobin level from 10.1 to 11.5 g/dl and increase in the hematocrit level from 31.8% to 34.5%. Similar results had been observed with the children who were provided with 10 mg of iron instead of 5 mg where the hemoglobin level increased from 10 to 11 g/dl and the hematocrit increased from 30.8% to 34.2%. Such results were promising enough for the government: they can apply the same treatment on a larger scale to cover all public schools in order to reduce the prevalence rate of anemia (Arcanjo *et al*., 2007).

It is also important to treat the anemic children with the most effective treatment not just providing iron as it was the case in Zanzibar where the iron had no significant impacts on the children's wasting and on their stunting malnutrition (Stoltzfus *et al*., 2004). Iron can be provided in terms of supplements or added to fortify food. Hence, Le *et al.*, (2006) studied the difference in the efficacy between iron supplements and iron fortification when implementing the treatment arms on the Vietnamese school children. The treatment was applied for six months and the treatment arms were either iron-fortified noodles and mebendazole (iron + MEB), mebendazole, and noodles without iron

fortification (MEB), iron-fortified noodles and placebo (iron), or iron supplementation as well as mebendazole (iron tablet + MEB). The results showed more efficacy of the iron supplementation relative to the iron fortification represented in the significant increase of hemoglobin concentration. For the children who received supplements, the hemoglobin concentrations increased from 21.2 ⁻(+) 10.7 g/l.., but only increased from 17.8 ⁻(+) 7.6 g/l.. in the children who received the iron fortification. This proves the more efficacies of the iron supplements relative to the iron fortification (Le *et al.*, 2006).

The efficacy of the iron supplements does not deny the efficacy of the iron fortification as well. There is another study has been implemented on Vietnamese children aged six to nine years where there was more than one treatment arm testing the impact on the prevalence of iron deficiency anemia. The treatment was either fortified biscuits on a daily basis and placebo tablet to be provided once a week, or iron tablet once a week as well as non-fortified biscuits on a daily basis. The results showed a significant increase in the hemoglobin concentration of the treated children who were provided fortified biscuits as well as the ones who were provided iron tablets relative to the control group who received a placebo only. The significant difference was not only observed on the hemoglobin concentrations but also on the wasting malnutrition as weight-for-height z-score showed an improvement in both treatment arms. The weight-for-height z-score was significantly higher by 0.19 z-score in the children who received the iron-fortified biscuits relative to the ones who received the supplements. However; height-for-age z-score and weight-for-age z-score showed no significant difference after the intervention, but still, this does not deny the reduction in the prevalence of iron deficiency anemia because of the improvement in the hemoglobin level (Hieu *et al.*, 2012).

Fortified supplements are not crucial only for improving the health outcomes, but also important for cognitive level. According to Idjradinata & Pollitte (1993), iron supplementation could reverse the cognitive deficits in iron deficiency. Although it has been proved by many studies that iron therapy does not have an impact on improving the scores of standardized tests of infants, the elder children, whose ages between two to six years, reacted better with iron therapies. They improved in terms of activity and cognitive functions when provided iron treatments in spite of the differences in the study's measures, designs, and/or the age of the child that took place in Greece, India, Guatemala, and Indonesia (Pollitt *et al.*, 1983; Pollitt *et al.*, 1986; Seshadri & Gopaldas, 1989; Soewondo *et al.*, 1989).

Soewondo *et al*. (1989) have reviewed the impact of iron supplementation treatment on anemic preschool children in many studies in the developing countries and the results are similar. There was a study that took place in Indonesia where half the sampled children have received 50 mg of elemental iron in 10 ml syrup per day for eight weeks. The second half of the children received a placebo. Peabody Picture Vocabulary Test has been used to measure the IQ level of the children. The results showed higher mean scores of the treated group relative to the mean scores of the ones who received a placebo. However; the iron supplements had no impact on the cognitive test performance as it is the case with the Discrimination Learning Colour task. The scores of the latter showed no significant difference after the provision of iron treatment. Also, the Oddity Learning task has been tested which calculates the total of the correct responses and the iron treatment has a highly significant effect on the treated anemic children (Soewondo *et al.*, 1989).

Seshadri & Gopaldas (1989) had covered multiple studies, that had taken place in India testing the impact of iron supplementation on different cognitive skills. The first

focus was on measuring the impact of providing 20 mg of elemental iron as well as 0.1 mg folic acid in a form of sugar-coated tablet on a daily basis for sixty days. The children's IQ level has been tested on Wechsler's Intelligence Scale for Children (WISC) which includes twelve tests, six of them are performance, and six are verbal tests. The results showed significant improvement in the mean total IQ scores for the older children seven to eight years old. The second focus of this study includes another impact evaluation of a different treatment that is represented in 40 mg of elemental iron and 0.2 mg folic acid on a daily basis for the same period of sixty days. The results showed improvement in the WISC scores represented in an increase in the treatment group of ten points in the verbal IQ and seventeen points in the performance IQ and this increase was significant for the treatment but insignificant in the control group (Seshadri & Gopaldas, 1989).

The cognitive level had been also measured in another study using a combination of Stanford-Binet and Bayley scores on two to five years of age children. After imposing iron supplementation, the results of the study observed no significant impact of the iron supplementation on the children's score (Deinard *et al.*, 1986). On the other hand, when the language development scores have been tested by a different study in rural African children, the iron supplements showed improvement in language skills by an increase of 0.8 points on a scale of 20-points (Stoltzfus *et al.*, 2001). Pigeons are supposed to obtain conditional discriminations

The impact of iron supplements had been also measured on discrimination and selective attention and the results showed significant improvements of iron represented in 8% improvement inaccuracy, and 14% improvement in commission errors (Metallinos-Katsaras *et al.*, 2004).

In 1972, Raine *et al.* (2003) had run an evaluation study for children with three follow-up studies. There was an intervention implemented on three to five years of age children in Mauritius. All children in the treatment and control groups were similar in psychophysiological baseline measures, ethnicity, and gender as their psychophysiological levels had been evaluated three years after the intervention. The intervention of Child Health Project included nutritional meals, preschool education, education programs, health assessments, physical exercise, in addition to, remediation for learning disorders and behavioral problems. The children who were enrolled in the nursery where the program implemented showed signs of increased psychophysiological functioning as they were able to process information better than the children of the same age who had not been exposed to the program. In addition, the former were more cognitively aroused than the latter children who haven't been exposed to the program. Such treated children had been evaluated at age seventeen and they observed fewer antisocial behavior and schizophrenia. At age twenty-three, they have been evaluated once more and they showed less likely engagement in criminal behavior (Raine *et al.*, 2003).

Besides Mauritius, there is an Early Childhood Development Program implemented in Mozambique to improve cognitive level of children, emotional, physical, and social development through supportive community-based preschool centers, community, and home environments where children are "learning by doing" under supportive adults' care. The main aims of the project were i) delivering quality early simulation, numeracy instruction, psychosocial support and emergent literacy, ii) build up positive parenting practices and lessen the harmful ones, and iii) facilitate the transition of the children to primary school. The impact of preschool on children development outcomes has

been measured by different tests represented in i) "Age & Stages Questionnaires" (ASQ), ii) "Teste de Vocabulario por Imagens Peabody" (TVIP), iii) the Strengths and Difficulties Questionnaire (SDQ), and iv) the Early Development Instrument (EDI). The results of these tests showed strong impacts of preschool on improving motor and emotional development and cognitive level of young children. The results of language and communication showed some positive results. In addition, the impact of preschool on primary school and time use has been measured and the results showed that the children who have been enrolled in the preschool have a higher likelihood to be enrolled in primary school. For the time use, the results showed that the dedicated time to schooling and homework activities increased for the treated children relative to the ones in the control group (Martinez *et al*., 2012).

Early childhood development projects are not only crucial for the children's schooling performance but also important for their returns in the labor market. In 1986-1987, there was stimulation intervention implemented on stunted children in Jamaica. It lasted for two years of weekly one-hour play sessions at home in order to develop the cognitive, psychosocial, and language skills of the children with trained community health aids. The study observed significant long-term cognitive benefits at age twenty-two. This is on the top of the positive impacts of this stimulation on the psychosocial skills of the children and their attainment during the school years. In addition, their participation in violent crimes had been reduced (Gertler *et al*., 2014).

To conclude

Since children attend school on a daily basis, it is possible to provide them with fortified supplements through their

teachers. Literature shows that such a policy would not only improve the anemic situation of the children but also guarantee better education improvement. This Chapter is the call for research on how effective such intervention not only in terms of impact on health and cognitive skills but also the cost efficiency and practicality of such a suggestion.

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